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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,860	09/16/2003	Michael Miller	5646-93IP	3135
20792	7590	12/01/2004	EXAMINER	
MYERS BIGEL SIBLEY & SAJOVEC PO BOX 37428 RALEIGH, NC 27627			LUU, PHO M	
			ART UNIT	PAPER NUMBER
			2824	

DATE MAILED: 12/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/663,860

Applicant(s)

MILLER ET AL.

Examiner

Pho M Luu

Art Unit

2824

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-21 and 27-30 is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-8 and 22 is/are rejected.
- 7) ☒ Claim(s) 4, 5 and 23-26 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>09/16/03; 10/12/04</u> . | 6) <input checked="" type="checkbox"/> Other: <u>Search History</u> . |

Qv

DETAILED ACTION

1. Acknowledgment is made of applicant's Preliminary Amendment 16 September 2003. The changes and remarks disclosed therein were considered.
2. Claims 1-30 are pending in the application.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

4. Acknowledgment is made of applicant's Information Disclosure Statement (IDS) Form PTO-1449, filed 16 September 2003. The information disclosed therein was considered.

Acknowledgment is made of applicant's Information Disclosure Statement (IDS) Form PTO-1449, filed 12 October 2004. The information disclosed therein was considered.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 1-3, 6-8 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Baumann. (US. 6,732,227) in view of Kim et al. (US. 6,584,003).

Regarding claims 1, 6, 8 and 22 Baumann in Figure 4-5 disclosed an integrated circuit device (310, Figure 4) comprising a CAM array block (401, Figure 4-5) that is configured to perform a search operation in a staged segment to segment manner (508, Figure 5).

Baumann fail to teach the hybrid that is pipelined into the CAM array during the stages of the search operation in segment to segment.

Kim et al in disclosed in Figure 3-4 and Figure 10 that the hybrid comparands (30, Figure 3 show the comparator circuit which is perform the pre-search match line (102) and match line (103) in Figure 4, see column 7, lines 51-58) of pipelined into the CAM array (the pre-search and (102) and main match line (103) operation are pipe-lines, see column 14, lines 12-15, Figure 10) with each of compared have a virtual sector (sector 101, 102, 102, 104, Figure 4) and data field (M-bit, N-bit, Figure 4).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to apply the teaching of Kim et al to Baumann such that the pre-search match line and the main search lines operation are pipe-lines to maintain high throughput with a cycle in the CAM operating speed can be increased.

With respected to claim 2, Baumann in Figure 4 disclosed the CAM array block (CAM array device including a single CAM array that is configured to store address information in the header) is responsive to a segment address which identifies an active segment of CAM cells in the CAM array block (see column 5, lines 4-6).

With respected to claim 3, Baumann in Figure 5 disclosed the CAM array block comprise a CAM array (CAM 401 including the plurality of CAM array) and the global mask cell sub-array (502) that is electrically coupled to the CAM array (see column 5, lines 34-35).

With respected to claim 7, Baumann in Figure 5 disclosed the CAM array block comprise a CAM array (CAM 401 including the plurality of CAM array) and the global mask cell sub-array (502) is responsive to a mode select signal (GMSK [7:4]).

Allowable Subject Matter

7. Claims 4-5 and 23-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 4, the prior art of record do not disclose or suggest a mask assertion signal generated by the global mask cell sub-array.

Regarding claim 5, the prior art of record do not disclose or suggest the virtual field and the segment address are derived from a second portion of the input address.

Regarding claims 23 and 25, the prior art of record do not disclose or suggest applying a data field of a second hybrid comparand to a second plurality of data line that are electrically coupled to a second segment of CAM cells in the CAM array.

Allowable Subject Matter

9. Claims 9-21 and 27-30 are allowed.

The following is an examiner's statement of reasons for allowance:

There is no teaching or suggestion in the prior art to:

"a CAM device that is responsive to the CAM segment address and is configured to treat the virtual sector address as a second portion of the input address as respective field of a search word during pipelined search operation" as claimed in the independent claim 9; or

"a global mask cell sub-array that is electrically coupled to the bit/data line control circuit and is responsive to a segment address signal that designates which one of the plurality of segment are active and which other ones of the plurality of segment are globally masked during a staged segment to segment search operation" as claimed in the independent claim 11 and the independent claim 14; or

"performing a search operation in a sector of a CAM device that is designated by the sector address, by applying a first hybrid comparand comprising the virtual sector address and a second portion of the first input address to first data lines that are electrically coupled to a CAM array with the sector" as claimed in the independent claim 27; or

"a memory device comprising an entry of microcode therein that is partitioned into at least a first field that identifies a write address in the multi-port memory array to which the index or data derived from using the index as a pointer is to be written" as claimed in the independent claim 29.


Conclusion

10. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Pho M. Luu whose telephone number is 571.272.1876. The examiner can normally be reached on M-F 8:00AM – 5:00PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's Supervisor, Richard Elms, can be reached on 571.272.1869. The official fax number for the organization where this application or proceeding is assigned is 703.872.9306 for all official communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PML
24 November 2004


MICHAEL S. LEBENTRITT
PRIMARY EXAMINER